

democratic progress. When we democratize education and freedom of speech and press, and so become unafraid of the democratization of labor and welfare, no sane man can be persuaded that revolution by violence can serve him any purpose.

THE COMING AGE.

BY ALEXANDER DEL MAR.

THREE or four thousand years ago the prevailing religion of the world was the worship of the sun, moon, and stars, as personified by Sol, Luna, Saturn, Jupiter, Venus, Mercury, Mars, all of which heavenly bodies were believed to circulate about the earth, as the center of the entire system; while their personifications governed the affairs of man.

This geocentric religion received an admonitory shock when the opening of Phœnician commerce with the Orient, about the fifteenth century B. C., led to a vague suggestion of the heliocentric theory; and to a second and more forcible shock when the Indian conquests of Darius and the voyage of Scylax brought to the West further proofs against the prevailing cosmogonical belief. These evidences, when echoed more or less publicly by Pythagoras, Thales, Anaximander, and Cœnopides, though suppressed by the temples and, in the case of Pythagoras, followed by the assassination of the philosopher, were nevertheless not extinguished.

Between the Indian expeditions of Darius and Alexander there were not a few philosophers who ventured to question the geocentric theory, upon which the religions of Greece were founded. Among them were Philolaus, Plato, Archytas, Heraclides of Pontus, Nicetas, and Aristarchus. But the information that Alexander acquired and Megasthenes brought from India was overwhelming, and the disquisitions of Aristotle, Dicæarchus, Seleucus, Timæus of Locris, Archimedes, and numerous other philosophers, though more or less cautiously disseminated, proved sufficient to effectually destroy the bulwarks of an erroneous astronomy and the fantastic creeds which grew out of or were sustained by it.

The immediate cause of their fall was, however, not due to scientific revolution, but to the degrading worship of Alexander, the Ptolemies, the Seleucidæ, and Demetrius Poliorcetes. It was revolt from this lowest form of anthropomorphism which swept

away all that remained of the ancient Greek schools and opened the way to the conquest of the heliocentric theory.

No enlarged survey of religious evolution during the past three thousand years will fail to afford similar lessons; the ever-increasing ground-swell of scientific advance and the top-wave of some immediate cause, something that aroused popular interest in public affairs after science or discovery had furnished the basis of progress.

The conquest of Europe, Asia Minor, and Northern Africa by Pompey, Cæsar and Augustus, brought to one focus of comparison the astronomical and geographical information of the principal civilized regions of the earth and resulted in that Augustan age of learning which afforded a point of departure for all scientific knowledge in the West. Later on, it was the disgust occasioned, not so much by the worship of Augustus, as of that of his imperial successors, which furnished the impetus for Christianity. It was the deadening influence of the conflict of the political and religious systems that followed, which is responsible for the Dark Ages.

As usual, the first heralds of returning light came from the East—*ex oriente lux*. In A. D. 530, Aryabhatta, a Hindu astronomer, revived and taught the heliocentric theory, and in one magnificent essay brushed aside the entire mass of false science and idiotic fables which were based upon the astrology of the Hindu temples. The knowledge of Aryabhatta's essay and of the observations upon which it was founded, was brought into Europe by the Arabians in the ninth century, the same in which the Norsemen coasted the continent of America. In A. D. 1020 Alberuni, an Arabian astronomer, in a work which became widely known in Europe, taught the heliocentric theory and accompanied it with a mass of scientific observations sufficient to afford food for cogitation to several generations of doubters. During six or seven centuries of darkness the Arabians alone held aloft the torch of science; and when it shone in Spain it lit a new and memorable light in the mind of a certain Galician navigator.

There is little risk in assigning the Protestant Reformation to the voyages of "Columbus." They smashed to pieces at once and forever the theory of a flat earth and the thousand and one delusions based upon it, in which the schools had previously indulged. They undermined the authority of the "fathers," of the saints, and of their pretended miracles. Yet the immediate cause of the Reformation was not the proofs of sphericity (for it was believed by most people that "Columbus" had landed upon the coast of India), nor the aberration of the compass, nor the art of high-sea navigation.

both of which he discovered, nor any other scientific knowledge connected with his memorable voyages; but the corruptions of Rome. Those are what Luther preached, because he knew that his hearers would understand him, while they would fail to grasp the infinitely more important consequences of the voyages to America. Yet without that achievement, Luther in the course of a few years would have been utterly forgotten, and Rome would have continued its reprehensible career unchecked.

Observe how many important discoveries were suddenly given to the world shortly after "Columbus" returned to Spain and related his marvelous story. Copernicus rediscovered the heliocentric theory, 1507; Moore published his *Utopia*, 1516; Magellan's ship circumnavigated the earth, 1522; the apogee of Melancthon, 1540, typifies the revival of learning and rise of literature in Europe; felted paper, the father of printing, was first made in western Europe, about 1400-1450; books and newspapers appeared shortly afterward; postal systems were established in Austria, Spain, England, France, and Italy, 1496-1524; vast quantities of gold and silver coins were minted by machinery in Spain, Mexico, and Peru, thus by affording it a common denominator, greatly stimulating trade in Europe, 1500-1560; the steam-engine and steamboat were invented and worked by Blasco de Garay of Barcelona, 1543; portable clocks or watches, 1450-1550; wind- and water-driven flour and saw mills; spinning-wheels, divingbells, pistols, and breech-loading cannon; all these and many other discoveries, inventions, and improvements sprang from the fertile mind of man within fifty or sixty years from the moment that the discovery of "Columbus" released it from the thralldom of the schools.

We are now in the midst of a similar halcyon age. Steam, electricity, and chemistry offer to man renewed powers over nature. The telegraph, telephone, flying-machine, radiography, astronomical observations, and a multitude of other discoveries and inventions again admonish him that a new age has dawned, that new rivals have commenced the struggle for supremacy, and that if he would take part in it, he must cast away all impediments and gird his loins for the contest.